

REMARKS

Claims 1-19, 30-49, 52-54, 65, 72, 81, 88, 102-115, 117, 119, and 127 are cancelled.
Claims 50, 51, 71-80, 82-86, 116, 118, 120-126, 128-132, and 134-142 are allowed.
Claims 20, 22, 55, 71, 87, and 89-101 are amended. No new subject matter is added.
Reconsideration and allowance of the remaining claims (claims 20-29, 55-64, 66-70, 87, 89-101, and 133) is respectfully requested in light of the remarks below.

Allowable Subject Matter

Claims 50, 51, 71-80, 82-86, 116, 118, 120-126, 128-132 and 134-142 are indicated to be allowable over the prior art of record.

With respect to allowed claim 71, the applicants noticed that the recitation of "the bonding wires" in the third from last line of the claim exhibits a lack of antecedent basis. In order to correct this problem, the claim is amended to recite that "each of the plurality of electrode pads is electrically connected to at least one of the plurality of single-layer leads with a bonding wire." Since this amendment is fully supported by the original application, there is no new subject matter added and claim 71 should remain in condition for allowance.

Claims 20-29 are indicated to be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, second paragraph, and to include all of the limitations of the base claim and any intervening claims. The applicants note that claims 20 and 22 are already written in independent form, and that claims 21 and 23-29 depend from claim 20. Thus, overcoming the 35 U.S.C. 112, second paragraph rejections is sufficient to place claims 20-29 in condition for allowance.

Claim Rejections – U.S.C. § 112

Claims 20-29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, it is alleged that it is unclear whether the phrase "the peripheral part has a thickness equal to the second thickness of the inner leads" refers to the "a protrusion of the peripheral part has a height equal to the second thickness of the inner leads" (emphasis in original).

Independent claims 20 and 22 already recite that the die pad includes the peripheral part and the die pad attaching part, and that the peripheral part surrounds and protrudes away from the chip attaching part. Thus, in keeping with the suggestion provided by the Examiner, claims 20 and 22 are amended to recite that "the peripheral part has a height equal to the

second thickness of the inner leads.” It is believed that this amendment places claims independent claims 20 and 22, and in turn dependent claims 21 and 23-29, in condition for allowance.

Claim Rejections – 35 U.S.C. § 102

Claims 55-57, 59, and 62-64 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,014,113 to Casto (“Casto”). The applicants disagree.

With this office action, claim 55 is extensively amended to more clearly and plainly recite the claim features. There is no new subject matter, as all changes are fully supported by the previous version of claim 55 as well as the originally filed specification (see, e.g., FIGs. 3a and 3b).

Claim 55 recites that each of the electrode pads is directly coupled to a corresponding lead with a bonding wire. This feature is fully supported by the originally filed specification at, e.g., FIG. 3b, where an electrode pad 128 is directly coupled to a corresponding lead 116 with a bonding wire 124.

It has been alleged that Casto shows leads 28 and electrode pads 14. Contrary to claim 55, however, Casto FIG. 1 plainly shows that each of the electrode pads 14 is not directly coupled to the alleged corresponding lead 28 with the bonding wire 34. Rather, the electrode pads 14 are coupled directly to structure 20 with the bonding wires 34.

For this reason, Casto fails to anticipate claim 55 because it does not show the identical invention in as complete detail as is contained in the claim. MPEP 2131, *citing Richardson v. Suzuki Motor Company*, 868 F.2d 1226, 1236 (Fed. Cir. 1989). That is, the alleged electrode pad 14 is not coupled directly to the alleged lead 28 with the alleged bonding wire 34.

Casto FIG. 1 does show that the alleged electrode pad 14 is coupled directly to the structure 20 with the alleged bonding wire 34. Casto teaches that the lead 20 consists of a proximal end 22 near the IC chip 12, distal ends 24 away from the chip 12, and a lead body 26 generally between the proximal ends 22 and the distal ends 24 (FIG. 1; column 3, lines 35-39).

However, if lead 20 is considered to be the lead recited in claim 55, then it runs afoul of another recited feature of claim 55. Claim 55 recites that the die pad has a uniform first thickness and the inner leads have a uniform second thickness that is greater than the first thickness. Claim 55 also defines the inner leads as the portion of the lead that is inside the package body.

Clearly, Casto FIG. 1 shows that the portion of the lead 20 that is inside the alleged package body 36 does not have a second thickness that is greater than the first thickness of the alleged die pad 40.

Finally, the portions of Casto's lead 20 and second frame layer 28 (FIG. 1; column 3, lines 40-42) that lie within the alleged package body might be considered to be the recited inner leads. However, this interpretation is also contrary to the features of claim 55.

Claim 55 defines the inner leads as the portion of the lead that is inside the package body. Claim 55 also recites that the inner leads have a uniform second thickness. Casto's lead 20 and second frame layer 28 are located inside the package body 36, but it is plain that the combined structure of lead 20/second frame layer 28 does not have a *uniform* thickness (emphasis added). Rather, there is a distinct "step" where the second frame layer 28 abruptly ends (FIG. 1).

Thus, whatever interpretation of Casto is adopted, it has been demonstrated that under no circumstances does Casto show the identical invention in as complete detail as is contained in claim 55. Thus, Casto fails to anticipate the claim. MPEP 2131.

Claims 56, 57, 59, and 62-64 depend from claim 55 and inherently contain the features of claim 55. Consequently, Casto also fails to anticipate these claims for at least the same reasons that were discussed above for claim 55.

Claim Rejections – 35 U.S.C. § 103

Claims 87-96, 100, 102-110, and 114 stand rejected under 35 U.S.C. 103(a) as being unpatentable over JP-2000-124396 to Nokita ("Nokita") in view of Casto and further in view of U.S. Patent No. 5,818,105 to Kouda ("Kouda"). The applicants disagree.

Like claim 55, independent claim 87 is extensively amended to more clearly and plainly recite the claim features. There is no new subject matter, as all changes are fully supported by the previous version of claim 87 as well as the originally filed specification (see, e.g., FIG. 10). Additionally, claim 87 is amended to incorporate features recited in claims 88 and 102.

Amended claim 87 recites, *inter alia*, an upper semiconductor chip, a lower semiconductor chip, and that the peripheral part of the die pad protrudes only in a direction toward the lower semiconductor chip. Neither Nokita, Casto (FIG. 1), nor Kouda (FIG. 8) disclose this feature.

Consequently, the Nokita/Casto/Kouda combination fails to establish *prima facie* obviousness for claim 87 because it does not teach or suggest all the features recited in the claim. MPEP 2143.03.

Claim 88 is cancelled. Claims 89-101 are amended for consistency with claim 87. The Nokita/Casto/Kouda combination also fails to establish *prima facie* obviousness for claims 89-96 and 101 because these claims depend from claim 87. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 102-110 and 114 are cancelled.

Claims 97-99 and 111-113 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nokita in view of Casto, in view of Kouda, and further in view of U.S. Patent Application Publication 2002/0113305 to Huang ("Huang"). The applicants disagree.

Claims 97-99 depend from claim 87. Amended claim 87 recites, *inter alia*, an upper semiconductor chip, a lower semiconductor chip, and that the peripheral part of the die pad protrudes only in a direction toward the lower semiconductor chip. Neither Nokita, Casto (FIG. 1), Kouda (FIG. 8), nor Huang (FIGs. 1-10) disclose this feature. Thus, the Nokita/Casto/Kouda/Huang combination fails to establish *prima facie* obviousness for claim 87 because it does not teach or suggest all the features recited in the claim. MPEP 2143.03. Consequently, the Nokita/Casto/Kouda/Huang combination also fails to establish *prima facie* obviousness for claims 97-99 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 111-113 are cancelled.

Claims 60, 61, and 70 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Casto. The applicants disagree.

Claims 60, 61, and 70 depend from claim 55. It was explained above how Casto fails to anticipate claim 55. Thus, Casto also fails to establish *prima facie* obviousness for claim 55 because it does not teach or suggest all the features recited in the claim. MPEP 2143.03.

Consequently, Casto also fails to establish *prima facie* obviousness for claims 60, 61, and 70 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, *citing In re Fine*, 837 F.2d 1071 (Fed. Cir. 1988).

Claim 65 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Casto in view of Nokita. Claim 65 is cancelled.

Claims 66-68 and 133 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Casto in view of Huang. The applicants disagree.

Claims 66-68 and 133 depend from claim 55. It was explained above how Casto fails to anticipate claim 55. Furthermore, Huang is not alleged to teach the features of claim 55 that Casto fails to teach, nor does it teach them. Thus, the Casto/Huang combination also fails to establish *prima facie* obviousness for claim 55 because it does not teach or suggest all the features recited in the claim. MPEP 2143.03. Consequently, Casto also fails to establish *prima facie* obviousness for claims 66-68 and 133 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, citing In re Fine, 837 F.2d 1071 (Fed. Cir. 1988).

Claims 69, 101, and 115 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Casto in view of U.S. Patent No. 6,177,718 to Kozono ("Kozono"). The applicants disagree.

Claim 115 is cancelled.


Claims 69 and 101 depend from claims 55 and 87, respectively. The Casto/Kozono combination fails to establish *prima facie* obviousness for claims 55 and 87, nor is it alleged to do so. Consequently, the Casto/Kozono combination also fails to establish *prima facie* obviousness for claims 69 and 101 because any claim that depends from a nonobvious independent claim is also nonobvious. MPEP 2143.03, citing In re Fine, 837 F.2d 1071 (Fed. Cir. 1988).

Conclusion

For the foregoing reasons, reconsideration and allowance of claims 20-29, 55-64, 66-70, 87, 89-101, and 133 is requested. Please telephone the undersigned at (503) 222-3613 if it appears that an interview would be helpful in advancing the case.

Respectfully submitted,

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